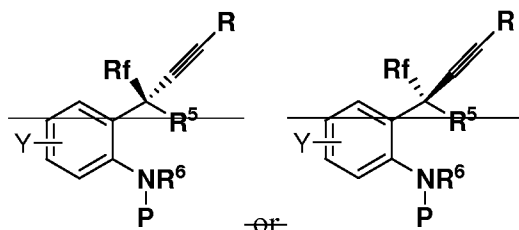


Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claim 1 (Currently amended): A process for synthesizing a ~~the~~ asymmetric synthesis of the chiral compound of the structure comprising the steps of



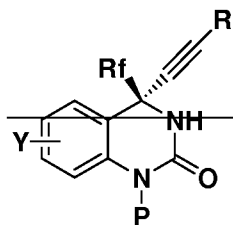
where Y is H, mono or multisubstituted electronwithdrawing group or electron-donating group, wherein Y can be located at *m*-, *o*-, or *p*-positon of the benzene ring;

P is hydogen or an amino protecting group,

Rf is fluoro-containing alkyl,

R is trialkylsilyl, alkyl, cycloalkyl or aryl group,

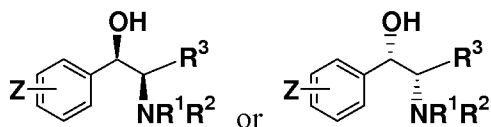
R⁶ is hydrogen when R⁵ is hydroxy, also R⁵ and R⁶ can be HNC=O of the structure or its enantiomer



where Y, P, R, R_f is the same as above;

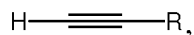
Comprising the steps of:

- (a) providing a mixture of mixing a chiral ligand (1R, 2R)-2-N, N- substituted-1-(substituted -phenyl)-2-R³-substituted-2-aminoethanol or its enantiomer having a formula of, of the structure



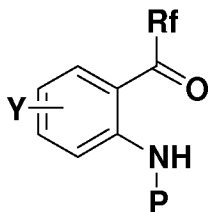
wherein R¹, R² is an amino protecting group; [,] ~~and~~ R³ is an alkyl[,]; alkyl-substituted with an alkyloxy or silyloxy, carboxylic group, carbalkoxy group, hydroxyl methyl, cycloalkyl, aryl, or CH₂OR⁴, ~~wherein~~ R⁴ is being an oxygen protecting group[,]; Z is H, a mono- or multi- substituted electron-withdrawing group or electron-donating group, and ~~wherein Z can be~~ located at m-, o-, or p-position of the benzene ring; with a terminal alkyne and a Zn(II), Cu(II) or Cu(I) salt ~~salts~~ in the presence of an organic base in an aprotic solvent,

wherein the terminal alkyne is

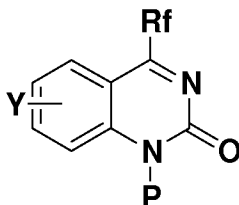


R is a trialkylsilyl, alkyl, cycloalkyl, or aryl group ~~the same as above~~,

- (b) mixing with the mixture with a of step (a) of reactant having a formula of the structure



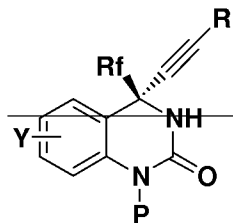
or of the structure



wherein P is hydrogen or an amino protecting group, Rf is a fluoro-containing alkyl, Y is H, a mono- or multi-substituted electron-withdrawing group or electron-donating group and located at *m*-, *o*-, or *p*-position of the ring ~~the same as above;~~

isolating and obtaining a chiral compound ~~obtains the target addition product after normal isolation.~~

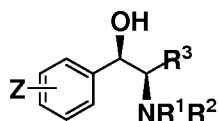
Claim 2 (Currently amended): The A process of claim 1, wherein the process is for the asymmetric synthesis of the chiral compound of the structure or its enantiomer



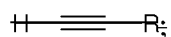
~~Comprising the steps of:~~

~~(a) — providing a mixture of the chiral ligand (1R, 2R)-2-N, N- substituted-1-(substituted -phenyl)-2-R³-substituted-2-aminoethanol or its enantiomer is (1R, 2R)-2-~~

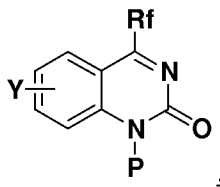
N,N-substitutedamino-1-(substituted-phenyl)-2-substituted-2-aminoethanol having a formula of ~~, of the structure, or its enantiomer~~



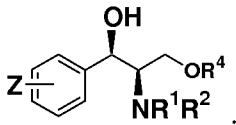
with a terminal alkyne and a Zn(II) or Cu salts in the presence of an organic base in aprotic solvent, wherein the terminal alkyne is



(b) ~~— mixing with the mixture of step (a) of the~~ reactant is ~~of the structure~~

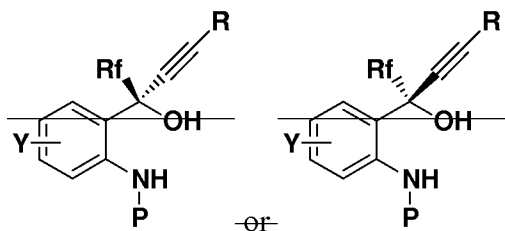


Claim 3 (Currently amended): The A process of claim 2, wherein the chiral ligand is (1*R*, 2*R*)-2-*N,N*-substitutedamino-1-(substituted-phenyl)-3-*O*-R⁴ substituted-propane-1-ol or its enantiomer having a formula of ~~, of the structure~~



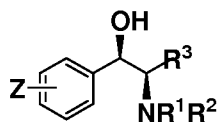
Claim 4 (Currently amended): The A process of claim 1, wherein ~~the process is for the~~

~~asymmetric synthesis of the chiral compound of the structure or its enantiomer~~

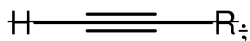


Comprising the steps of:

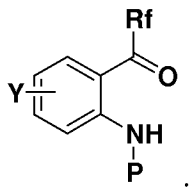
(a) — providing a mixture of the chiral ligand is (1R, 2R)-2-*N,N*- substitutedamino-1-(substituted- phenyl)-2- R^3 -substi- tuted-1-ethanol or its enantiomer having a formula of ;
 of the structure—,



with a terminal alkyne and a Zn(II) or Cu salts in the presence of an organic base in aprotic solvent, wherein the terminal alkyne is



(b) — mixing with the mixture of step (a) of and the reactant is of the structure



Claim 5 (Currently amended): The A process of claim 1, wherein R^1 and R^2 is an

alkyl, substituted alkyl, benzyl, trialkylsilyl₂ or substituted benzyl, the substituted group ~~can be~~ being a phenyl, naphenyl, halo, nitro, hydroxy, C₁~C₃ hydroxyalkyl, C₁~C₄ alkyl, or C₁~C₃ alkoxy[;], or R¹, R² being ~~can be~~ -(CH₂)_nX(CH₂)_m-, where X being ~~can be~~ CH₂, O₂ or NH; n,m is an integer from 1 to 6[.];

P is hydrogen, an alkyl, substituted alkyl, benzyl, trialkylsilyl₂ or substituted benzyl, the substituted group ~~can be~~ being a phenyl, naphenyl, halo, nitro, hydroxy;

R⁴ is an alkyl, substituted alkyl, benzyl, trialkylsilyl₂ or substituted benzyl, the substituted group ~~can be~~ being a phenyl, naphenyl, halo, nitro, hydroxy, C₁~C₃ hydroxyalkyl, C₁~C₄ alkyl, C₁~C₃ alkoxy or CN;

the electron-withdrawing group is a halogen, NO₂, CF₃, CH₃SO₂, CH₃CH₂SO₂, PhCH₂OCO, or AcO[.];

the electron-donating group is an alkoxy, OH, Me₂NCH₂CH₂O, Et₂NCH₂CH₂O, NH₂, or C₁~C₄ alkyl.

Claim 6 (Currently amended): The A process of claim 1, wherein R¹ and R² is a C₁~C₂₀ alkyl, C₁~C₂₀ substituted alkyl, trialkylsilyl, benzyl₂ or substituted benzyl, the substituted group ~~can be~~ being a phenyl, naphenyl, halo, nitro, hydroxy, C₁~C₃ hydroxy alkyl, C₁~C₂₀ alkyl, or C₁~C₃ alkoxy[;], or R¹, R² ~~can be~~ being -(CH₂)_nX(CH₂)_m-, where X ~~can be~~ being CH₂, O or NH;

n,m is an integer from 1 to 6;

R³ is a C₁~C₂₀ alkyl[;], C₁~C₂₀ alkyl substituted with an alkyloxy or silyoxy, carboxylic group, C₁-C₂₀ carbalkoxy group, hydroxyl methyl, C₃~C₂₀ cycloalkyl, aryl₂ or

CH_2OR^4 , wherein R^4 is being a $\text{C}_1\sim\text{C}_{20}$ alkyl, $\text{C}_1\sim\text{C}_{20}$ substituted alkyl, benzyl, or substituted benzyl, the substituted group ~~can be~~ being a phenyl, naphenyl, halo, nitro, hydroxy, $\text{C}_1\sim\text{C}_3$ hydroxyalkyl, $\text{C}_1\sim\text{C}_4$ alkyl, $\text{C}_1\sim\text{C}_3$ alkoxy, or CN;

Z is H, F, Cl, Br, I, CH_3SO_2 , OH, PhCH_2O , AcO, MeO, EtO, $\text{Me}_2\text{NCH}_2\text{CH}_2\text{O}$, $\text{Et}_2\text{NCH}_2\text{CH}_2\text{O}$, PhCH_2OCO , *t*-Bu, *i*-Pr, NH_2 , or NO_2 ;

P is hydrogen, a $\text{C}_1\sim\text{C}_{20}$ alkyl, $\text{C}_1\sim\text{C}_{20}$ substituted alkyl, benzyl, trialkylsilyl or substituted benzyl, the substituted group ~~can be~~ being a phenyl, naphenyl, halo, nitro, hydroxy, $\text{C}_1\sim\text{C}_3$ hydroxyalkyl, $\text{C}_1\sim\text{C}_4$ alkyl, $\text{C}_1\sim\text{C}_3$ alkoxy, or CN;

Y is H, F, Cl, Br, I, CH_3SO_2 , OH, PhCH_2O , AcO, MeO, EtO, $\text{Me}_2\text{NCH}_2\text{CH}_2\text{O}$, $\text{Et}_2\text{NCH}_2\text{CH}_2\text{O}$, PhCH_2OCO , *t*-Bu, *i*-Pr, NH_2 , or NO_2 ;

R_f is a $\text{C}_1\sim\text{C}_{20}$ fluoro-containing alkyl;

R is a trialkylsilyl, $\text{C}_1\sim\text{C}_{20}$ alkyl[,], $\text{C}_3\sim\text{C}_{20}$ cycloalkyl, or aryl group[;].

Claim 7 (Currently amended): The A process of claim 1, wherein R^1 and R^2 is a $\text{C}_1\sim\text{C}_4$ alkyl, tri-phenylmethyl, *t*-butyldimethylsilyl, benzyl unsubstituted or substituted with $\text{C}_1\sim\text{C}_4$ alkyl[;], *para*-methoxy benzyl[;], *para*-nitrobenzyl[;], *para*-chlorobenzyl[;], 2, 4-dichlorobenzyl[;], or 2, 4-dimethoxybenzyl[;], or R^1 , R^2 ~~can be~~ being $-(\text{CH}_2)_2\text{O}(\text{CH}_2)_2-$, $-(\text{CH}_2)_2\text{N}(\text{CH}_2)_2-$, $-(\text{CH}_2)_5-$ or $-(\text{CH}_2)_6-$;

R^3 is a $\text{C}_1\sim\text{C}_4$ alkyl, $\text{C}_1\sim\text{C}_4$ alkyl substituted with alkyloxy or silyloxy, carboxylic group, $\text{C}_1\sim\text{C}_4$ carbalkoxy group, hydroxyl methyl, $\text{C}_3\sim\text{C}_6$ cycloalkyl, aryl or CH_2OR^4 , wherein R^4 being a $\text{C}_1\sim\text{C}_4$ alkyl, tri-phenyl methyl, *t*-butyl- dimethylsilyl, benzyl unsubstituted or substituted with $\text{C}_1\sim\text{C}_4$ alkyl, *para*-methoxy benzyl, *para*-nitrobenzyl,

para-chlorobenzyl, 2, 4-dichlorobenzyl, 2, 4- dimethoxybenzyl, or trialkylsilyl groups;

Z is H, F, Cl, Br, I, CH₃SO₂, OH, PhCH₂O, AcO, MeO, EtO, Me₂NCH₂CH₂O, Et₂NCH₂CH₂O, PhCH₂OCO, *t*-Bu, *i*-Pr, NH₂, or NO₂;

P is hydrogen, a C₁~C₄ alkyl, tri-phenylmethyl, *t*-butyldi- methylsilyl, benzyl unsubstituted or substituted with C₁~C₄ alkyl; *para*-methoxy benzyl, *para*-nitrobenzyl, *para*-chlorobenzyl, 2,4-dichlorobenzyl, or 2, 4-dimethoxy- benzyl;

Y is H, Cl, Br, CH₃SO₂, CH₃CH₂SO₂, NO₂, or F;

R_f is a C₁~C₄ fluoro-containing alkyl;

R is a C₁~C₄ alkyl, C₃~C₆ cycloalkyl, or aryl group, ~~wherein~~ aryl is being a phenyl, naphenyl, furan, thiophene, or pyrrole;

~~Halogen~~ halogen or halo is a fluoro, chloro, bromo, or ~~and~~ iodo.

Claim 8 (Currently amended): The A process of claim 1, wherein the stoichiometric ratios are about 0.1- 3 : 0.1-3 : 1-4 :1 of ligand : Zinc salt:the organic base : substrate ketone or ketimine.

Claim 9 (Currently amended): The A process of claim 1, wherein the ~~Zinc~~ salt is ~~selected from~~ ZnCl₂, ZnBr₂, ZnF₂, ZnI₂, Zn(OTf)₂, CuCl₂, CuBr₂, Cu(OTf)₂, CuCl, CuBr, or Cu(OTf).

Claim 10 (Currently amended): The A process of claim 1, wherein the organic base is ~~selected from~~ MeN(*i*Pr)₂, HNEt₂, N(*i*Pr)₃, pyridine, NEt₃, piperidine, EtN(*i*Pr)₂, or Bu₃N.

Claim 11 (Currently amended): The A process of claim 1, wherein the reaction temperature is 0-100°C

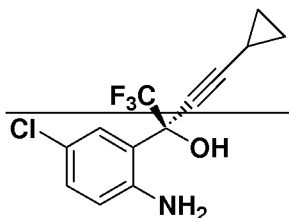
Claim 12 (Currently amended): The A process of claim 11, wherein the reaction temperature is 0-50°C.

Claim 13 (Currently amended): The A process of claim 1, wherein the aprotic reaction solvent is selected from THF, dioxane, Et₂O, benzene, a mono or multi-alkylsubstituted-benzene, DME, toluene, n-hexane, CH₂Cl₂ and a cyclohexane, or a mixture thereof. ~~One preferred solvent is toluene.~~

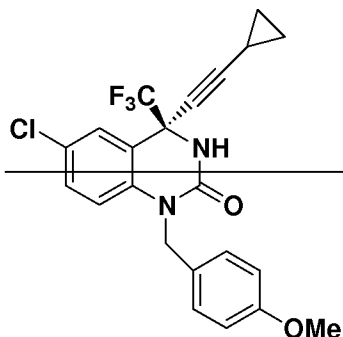
Claim 14 (Currently amended): The A process of claim 1, wherein further comprising the step of

quenching the mixture reaction by adding a proton source to give the chiral desired compound.

Claim 15 (Currently amended): The A process of claim 1, comprising the steps of wherein it is for the asymmetric synthesis of the chiral compound of the structure

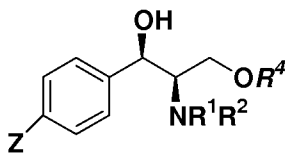


~~or of the structure~~



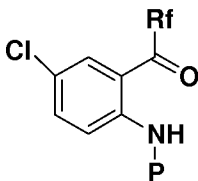
~~Comprising the steps of:~~

- (a) ~~providing a mixture of~~ mixing 0.1~3 molar equivalent of (1R,2R)-2-*N,N*-substitutedamino-1-(4-Z-substituted- phenyl)-3-*O*-R⁴-*substituted* propane-1-ol having a formula of [.] ~~of the structure~~

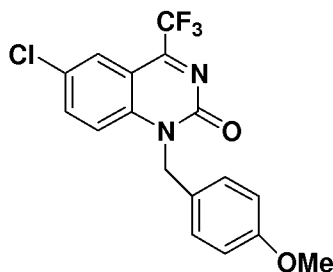


with 0.1~3 molar equivalent of cyclopropylacetylene, and 0.1~3 molar equivalent of Zn(II), Cu(I) or Cu(II) salts, and 1~4 molar equivalent of an organic base in organic solvent;

- (b) mixing with the mixture of step (a) with 1.0 molar equivalent of a reactant having a formular of ~~of the structure~~



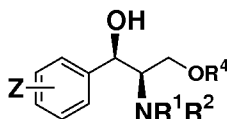
~~or of the structure~~



and maintaining the resulting reaction mixture at a temperature of between about 0-50°C for 1-20 hrs[.];

- (c) quenching by adding a proton source;
- (d) ~~to give the desired~~ obtaining the chiral compound.

Claim 16 (Currently amended): The A compound ~~of the structure~~ or its enantiomer having a formula of



wherein R¹, R² is an amino protecting group[.];

~~and~~ R⁴ is an oxygen protecting group;

Z is NO₂, CH₃SO₂, or CH₃CH₂SO₃ ~~mono or multisubstituted electron-~~
~~withdrawing group or electron-donating group;~~

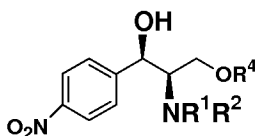
~~and~~ when Z is NO₂ at 4-postion of the phenyl, R¹ is N=O, R² is COCH₃, R⁴ is an
~~only~~ alkyl, substituted alkyl, benzyl, substituted benzyl, or trialkylsilyl;

~~and~~ when Z is NO₂ at 4-postion of the phenyl, R¹, R² is CH₃, the ligand is ~~only~~
 (1R, 2R)-2-*N,N*-dimethylamino-1-(4- nitrophenyl)-3-*O*-R⁴-1-propanol[.];

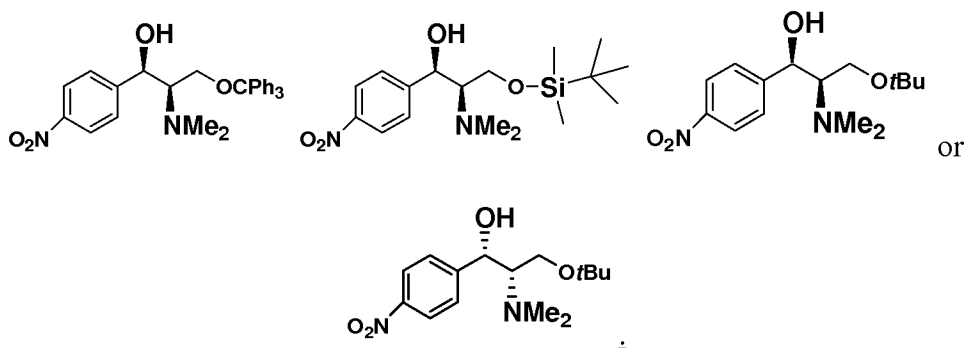
~~and~~ when Z is OCH₃ at 4-postion of the phenyl, R¹, R² is CH₃, R⁴ is ~~an only~~ alkyl,

~~substituted alkyl, benzyl, substituted benzyl; said substituted group is phenyl, naphthyl, halogen, NO₂, hydroxyl, C₁~C₃ hydroxyalkyl, C₁~C₄ alkyl, C₁~C₃ alkoxy, or CN;~~

Claim 17 (Currently amended): The compound of claim 16 having a formula of ~~of~~ the structure or its enantiomer



Claim 18 (Currently amended): The compound of claim 16, ~~of the structure~~ having a formula of or its enantiomer



Claim 19 (Currently amended): The compound of claim 16, wherein R¹ and R² is an alkyl, substituted alkyl, benzyl, trialkylsilyl, or substituted benzyl, the substituted group ~~can be~~ being a phenyl, naphenyl, halo, nitro, hydroxy, C₁~C₃ hydroxyalkyl, C₁~C₄ alkyl, or C₁~C₃ alkoxy[:], or R¹, R² ~~can be~~ being -(CH₂)_nX(CH₂)_m-, ~~where X can be~~ being a CH₂, O, or NH;

n,m is an integer from 1 to 6;

R^4 is an alkyl, substituted alkyl, benzyl, or substituted benzyl, the substituted group ~~can be~~ being a phenyl, naphenyl, halo, nitro, hydroxy, $C_1\sim C_3$ hydroxy alkyl, alkyl, $C_1\sim C_3$ alkoxy, or CN;

~~electron withdrawing group is halogen, Z is~~ NO_2 , CF_3 , CH_3SO_2 , or $CH_3CH_2SO_2$,
 $PhCH_2OCO$, or AcO ;

~~electron donating group is~~ $C_1\sim C_3$ alkoxy, OH, $Me_2NCH_2CH_2O$, $Et_2NCH_2CH_2O$,
 NH_2 , $C_1\sim C_4$ alkyl;

and when Z is NO_2 at 4-position of the phenyl, R^1 is $N=O$, R^2 is $COCH_3$, R^4 is only alkyl, substituted alkyl, benzyl, substituted benzyl, or trialkylsilyl;

and when Z is NO_2 at 4-position of the phenyl, R^1 , R^2 is CH_3 , the ligand is ~~only~~
(1R, 2R)-2-*N,N*-dimethyl-1-(4-nitrophenyl)-3-*O-R*⁴-1-propanol[;]

and when Z is OCH_3 at 4-position of the phenyl, R^1 , R^2 is CH_3 , R^4 is only alkyl,
substituted alkyl, benzyl, substituted benzyl.

Claim 20 (Currently amended): The compound of ~~according to~~ claim 16, wherein R^1 and R^2 is a $C_1\sim C_{20}$ alkyl, $C_1\sim C_{20}$ substituted alkyl, trialkylsilyl, benzyl, or substituted benzyl, the substituted group of alkyl or benzyl ~~can be~~ being a phenyl, naphenyl, halo, nitro, hydroxy, $C_1\sim C_3$ hydroxyalkyl, $C_1\sim C_4$ alkyl, $C_1\sim C_3$ alkoxy, or CN[;], or R^1 , R^2 ~~can be~~ being $-(CH_2)_nX(CH_2)_m-$, where X ~~can be~~ being CH_2 , O or NH;

n,m is an integer from 1 to 6;

R^4 is a $C_1\sim C_{20}$ alkyl, $C_1\sim C_{20}$ substituted alkyl, benzyl, trialkylsilyl, or substituted benzyl, the substituted group ~~can be~~ being a phenyl, naphenyl, halo, nitro, hydroxy,

C₁~C₃ hydroxyalkyl, C₁~C₄ alkyl, C₁~C₃ alkoxy or CN;

Z is H, F, Cl, Br, I, CH₃SO₂ OH, PhCH₂O, AcO, MeO, EtO, Me₂NCH₂CH₂O,
Et₂NCH₂CH₂O, PhCH₂OCO, *t*-Bu, *i*-Pr, NH₂, or NO₂;

~~and~~ when Z is NO₂ at 4-postion of the phenyl, R¹ is N=O, R² is COCH₃, R⁴ is ~~only~~
an alkyl, substituted alkyl, benzyl, substituted benzyl, or trialkylsilyloxy;

~~and~~ when Z is NO₂ at 4-postion of the phenyl, R¹, R² is CH₃, the ligand is ~~only~~
(1R, 2R)-2-*N,N*-dimethyl- amino-1-(4- nitrophenyl)-3-*O*-R⁴-propane-1-ol[;]

~~and when Z is OCH₃ at 4 postion of the phenyl, R¹, R² is CH₃, R⁴ is only alkyl,
substituted alkyl, benzyl, substituted benzyl; said substituted group is phenyl, naphthyl,
halogen, NO₂, hydroxyl, C₁~C₃ hydroxyalkyl, C₁~C₄ alkyl, C₁~C₃ alkoxy, or CN;~~

Claim 21 (Currently amended): The compound of ~~according to~~ claim 16, wherein R¹
and R² is a C₁~C₄ alkyl, tri-phenyl methyl, *t*-butyldimethylsilyl, benzyl unsubstituted or
substituted with C₁-C₄ alkyl[;], *para*-methoxy benzyl[;], *para*-nitrobenzyl[;], *para*-
chlorobenzyl[;], 2, 4-dichlorobenzyl[;], 2, 4-dimethoxybenzyl;

R⁴ is a C₁~C₄ alkyl, tri-phenyl methyl, *t*-butyldimethylsilyl, benzyl unsubstituted
or substituted with C₁~C₄ alkyl[;], *para*-methoxy benzyl[;], *para*-nitrobenzyl[;], *para*-
chlo- robenzyl[;], 2, 4-dichlorobenzyl[;], or 2, 4-dimethoxybenzyl;

Z is H, F, Cl, Br, I, CH₃SO₂ OH, PhCH₂O, AcO, MeO, EtO, Me₂NCH₂CH₂O,
Et₂NCH₂CH₂O, PhCH₂OCO, *t*-Bu, *i*-Pr, NH₂, or NO₂;

~~and~~ when Z is NO₂ at 4-postion of the phenyl, R¹ is N=O, R² is COCH₃, R⁴ is
~~only~~ an alkyl, substituted alkyl, benzyl, substituted benzyl, or trialkylsilyl;

~~and~~ when Z is NO₂ at 4-position of the phenyl, R¹, R² is CH₃, the ligand is ~~only~~
(1R, 2R)-2-*N,N*-dimethyl-amino-1-(4-nitrophenyl)-3-*O*-R⁴-propane-1-ol[;]

~~and when Z is OCH₃ at 4-position of the phenyl, R¹, R² is CH₃, R⁴ is only alkyl,~~
~~substituted alkyl, benzyl, substituted benzyl.~~